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NO. 0304 P. 12/17

Applicant: F. Shimoshikiryoh
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REMARKS

Applicant appreciates the Examiner's thorough examination of the subject application and requests reconsideration of the subject application based on the foregoing amendments and the following remarks.

Claims 4, 9-11, 13 and 16 are pending in the subject application.

Claims 1-3 were previously canceled.

Claims 5-8, 12, 14, 15 and 17 are withdrawn from consideration. As each of the withdrawn claims is dependent (directly or ultimately) from claim 4 and claim 4 is considered to be allowable herein, Applicant respectfully requests that the withdrawn claims be re-joined with the pending claims. Notwithstanding this, Applicant reserves the right to present the above-identified withdrawn claims in a divisional application.

Claims 4, 9-11, 13 and 16 stand rejected under 35 U.S.C. §103.

Claim 4 was amended so as to include the limitations of claim 9 and for clarity. Also, claim 9 was canceled in the foregoing amendment.

The amendments to the claims are supported by the originally filed disclosure. In addition to claim 9, see also, for example, pg. 85, lines 18-22, pg. 85, line 24 to pg. 86, line 16, pg. 86, line 16 to pg. 87, line 8 and pg. 92, line 8 to pg. 94, line 27 of the subject application.

35 U.S.C. §103 REJECTIONS

Claims 4, 9-11, 13 and 16 stand rejected under 35 U.S.C. §103 as being unpatentable over Tillin et al. [USP 6,204,904 ; "Tillin"] in view of Matsumoto et al., Electronic Display Devices 1990 John Wiley & Sons, Ltd ["Matsumoto"], Woo et al. [USP 6,191,836; "Woo"] and Sharp [USP 5,751,384]. Applicant respectfully traverses as discussed below.

Because claim 9 was canceled and the limitations thereof added to claim 4, Applicant has not separately addressed the within rejection of claim 9 herein. Because claims were amended in

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the instant amendment, the following discussion refers to the language of the amended claims. However, only those amended features specifically relied upon to distinguish the claimed invention from the cited prior art shall be considered as being made to overcome the cited reference.

The liquid crystal display device according to claim 4 includes, *inter alia*, the following structures/features (note categorizing of structures/features added below for purposes of discussion):

(a) a first phase difference compensator that is provided between the first polarizing plate and the first substrate, a second phase difference compensator that is provided between the second polarizing plate and the second substrate, the first and second phase difference compensators each have a positive refractive index anisotropy, and the phase-delay axes of the first and second phase difference compensators are parallel to each other and perpendicular to a phase-delay axis of the liquid crystal layer;

(b) a third phase difference compensator provided between the first phase difference compensator and the first polarizing plate, wherein the third phase difference compensator has a positive refractive index anisotropy and a phase-delay axis of the third phase difference compensator is substantially perpendicular to the first and second substrates;

a fourth phase difference compensator provided between the second phase difference compensator and the second polarizing plate, wherein the fourth phase difference compensator has a positive refractive index anisotropy, and a phase-delay axis of the fourth phase difference compensator is substantially perpendicular to the first and second substrates;

(c) a fifth phase difference compensator provided between the first phase difference compensator and the third phase difference compensator;

a sixth phase difference compensator provided between the second phase difference compensator and the fourth phase difference compensator;

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wherein the fifth and sixth phase difference compensators each have a positive refractive index anisotropy, a phase-delay axis of the fifth phase difference compensator is substantially perpendicular to a polarization axis of the first polarizing plate, and a phase-delay axis of the sixth phase difference compensator is substantially perpendicular to a polarization axis of the second polarizing plate; and

(d) wherein, in the absence of an applied voltage, the liquid crystal layer in each pixel region includes at least a first domain and a second domain in which liquid crystal molecules are oriented in different orientations, and, in the absence of an applied voltage, the phase difference compensators are in a condition that the orientation states of the first and second domains are substantially the same with each other, and the phase difference compensators compensate for the refractive index anisotropy of the liquid crystal molecules in a substantially parallel orientation with respect to the surfaces of the first and second substrates in the absence of the applied voltage, and the liquid crystal molecules in the presence of an applied voltage rise in the opposite direction with each other

As explained further herein a liquid crystal display device having the foregoing structures/features (a) to (d) above can result in optical compensation in the absence of an applied voltage and in the presence of the applied voltage in all directions and thus, improve display quality.

As to the structure/feature listed above as (a); the compensation of the liquid crystal molecules in the front direction (substantially parallel to a surface of the substrate) in the absence of an applied voltage is performed. In other words, the light leakage due to the refractive index anisotropy of the liquid crystal molecules in the absence of an applied voltage when viewed in the front direction is suppressed, *i.e.*, excellent black display can be obtained. See also the discussion at pg. 85, lines 18 to 22 of the subject application.

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As to the structure/feature listed above as (b); the change in transmissivity associated with the change in viewing angle is compensated. In particular, light leakage associated with the change in viewing angle in the absence of the applied voltage (*i.e.*, in a black display) is suppressed. See also the discussion at pg. 85, line 24 to pg. 86, line 16 of the subject application.

As to the structure/feature listed above as (c); the rotation of the polarization axis of elliptically-polarized light is compensated. Further, a display with excellent viewing angle characteristics is produced. See also the discussion at pg. 86, line 16 to pg. 87, line 8 of the subject application.

As to the structure/feature listed above as (d); it is possible to improve the asymmetry in the gray scale characteristics with respect to the viewing angle in the presence of the applied voltage, and to obtain gray scale characteristics (viewing angle characteristics) which are symmetric in the up-down direction and in the left-right direction. See also the portion of the specification relating to "Orientation Division", starting from pg. 89, especially, pg. 92, line 8 to pg. 94, line 27 of the subject application.

As to the art cited in the grounds for the rejection, Applicant makes the following observations. Tillin pertains to an invention related to a reflective liquid crystal device. The problem to be resolved thereof is to improve a high-contrast with a high-luminance. This problem is clearly different from the problem being resolved by the present invention. Also, a phase-delay axis of a phase difference compensator is *only* in an inward direction with respect to a substrate. In contrast, the present invention has a phase difference compensator in a vertical direction with respect to the substrate (*e.g.*, see structure listed above as (b), and see also, the discussion at pg. 85, line 24 to pg. 86, line 86 of the subject application).

Matsumoto only describes a fundamental operation of a liquid crystal device. Matsumoto does not describe anywhere the structures of the present invention, including those listed above as (a)-(d). Woo only discusses orientation division.

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Sharp pertains to an invention related to a color polarizer for only outputting a particular wavelength. A phase-delay axis of a phase difference compensator is only in an inward direction. As indicated above in connection with Tillin, the phase difference compensator of the present invention is in a vertical direction with respect to the substrate. Also, the objective in Tillin is different from that of the present invention. Moreover, the effect of Tillin versus the present invention also is different.

As provided in the MPEPs, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As provided above, the references cited, alone or in combination, include no such teaching, suggestion or motivation.

Furthermore, a prior art reference can be combined or modified to reject claims as obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Additionally, it also has been held that if the proposed modification or combination would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Further, and as provided in MPEP-2143, the teaching or suggestion to make the claimed combination and the reasonable suggestion of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As can be seen from the forgoing discussion regarding the disclosures of the cited references, there is no reasonable expectation of success provided in the references.

It is respectfully submitted that for the foregoing reasons, claims 4, 10, 11, 13 and 16 are patentable over the cited reference(s) and thus, satisfy the requirements of 35 U.S.C. §103. Accordingly, these claims are allowable.

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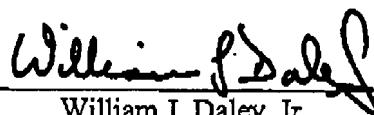
It is respectfully submitted that the subject application is in a condition for allowance.
Early and favorable action is requested.

Applicant believes that additional fees are not required for consideration of the within Response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. 04-1105.

Respectfully submitted,
Edwards Angell Palmer & Dodge, LLP

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By:



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